

VOL. I

May 1904

NO. 6

The Cornell Countryman



CORNELL UNIVERSITY
COLLEGE OF AGRICULTURE
ITHACA, N. Y.

It's Pleasant To Know and Use Tubular Separators



If you are preparing to operate a dairy, one of the most important things to know is the superiority of the Tubular Separators.

Look Deep

Observe closely and you'll conclude that, with the bottom feed, which will hasten clean skimming—the Tubular bowl, turning lightly on the single ball-bearing from which it is suspended—the simple, three piece bowl, so easy to wash—the waist low supply can, overcoming top heaviness, preventing spilled milk, obviating strained backs—the wholly enclosed, entirely self-oiling, instantly accessible gears—the Tubular Separator is much superior to all others. No other separator has any of these features.

Catalog T will tell you much more about them. Write for it.

The Sharples Co.,
CHICAGO, ILL.

P. M. Sharples,
West Chester, Pa.



Eggs! Eggs! Eggs!

GORDON'S POULTRY RANCH

Get your Hatching Eggs from Northern grown stock where disease is unknown. My breeders which are "The Survival of the Fittest", consist of over 800 selected Wyckoff-Van Dresser S. C. White Leghorns, and have the unlimited range of 850 acres. They have the size, vigor and stamina right in them and lay those large snow white eggs that have plenty of pick in them. No Inbreeding. Fresh Eggs. Quick Shipments. Fifteen \$1.00, Fifty \$3.00, Hundred \$5.00. Circulars free.

Local and Long Distance Telephone connections.

F. E. GORDON, CHAZY, N. Y.



TRADE MARK

Oh, when you want the Business done
By play that's strong and steady,
Just take a look at old Slug Shot,
For that's the stuff that's ready.

Sold by the Seed Dealers of America.

Hammond's Paint & Slug Shot Works,

FISHKILL-ON-HUDSON, N. Y.

DE LAVAL CREAM SEPARATORS

are most decidedly

THE BEST IN THE WORLD

After this is said, the whole Separator story is told. The moral is obvious. If you are not a DeLaval enthusiast it is only because you lack DeLaval experience.

Once a man uses a DeLaval machine, he sticks to it—it always satisfies, never disappoints. This cannot be said of imitating separators. The De Laval machines prove their supremacy by consistent, perfect results, day by day.

An interesting catalogue will be sent free on request, together with name of nearest local agent who will gladly show machines.

THE DE LAVAL SEPARATOR CO.

RANDOLPH & CANAL STS.,
CHICAGO.
1213 FILBERT STREET,
PHILADELPHIA.
9 & 11 DRUMM ST.,
SAN FRANCISCO.

General Offices:
74 CORTLANDT STREET,
NEW YORK.

121 YOUNGVILLE SQUARE,
MONTREAL.
75 & 77 YORK STREET,
TORONTO.
248 McDERMOT AVENUE,
WINNIPEG.

CONTENTS—MAY, 1904

One of the College of Agriculture Barns	- - -	Frontispiece
The Outlook for Agricultural Teaching		
III. In New England	- - - <i>Rufus W. Stimson</i>	165
Sanitary Milk,—Its Future	- - - <i>R. A. Pearson</i>	168
Agricultural Engineering	- - - <i>S. Fraser</i>	170
Somewhat About Jamaican Farmers	- - - <i>Scott Perky</i>	173
The Animal Industry Excursion	- - - <i>H. Truckell</i>	176
Volunteer Orchards	- - - <i>C. S. Wilson</i>	176
Education from a Special Train	- - - - -	177
The "Unlocking" of Straw	- - - <i>Christian Bues</i>	177
Editorial		
The Outlook for Agricultural Teaching	- - - - -	178
Nature-Study in the Rural Schools	- - - - -	179
Reading Matter for Farmers	- - - - -	179
General Agricultural News	- - - - -	180
Cornell News		
Campus Notes	- - - - -	181
Former Students	- - - - -	182
Winter Dairy Class of 1904	- - - - -	183

THE CORNELL COUNTRYMAN is an Illustrated Monthly Magazine, published by students and graduates of the Cornell University College of Agriculture.

MANUSCRIPT for publication should be received by the 10th of the month preceding that in which it is to be published.

SUBSCRIPTION, \$1.00 per year, single number 10 cents.

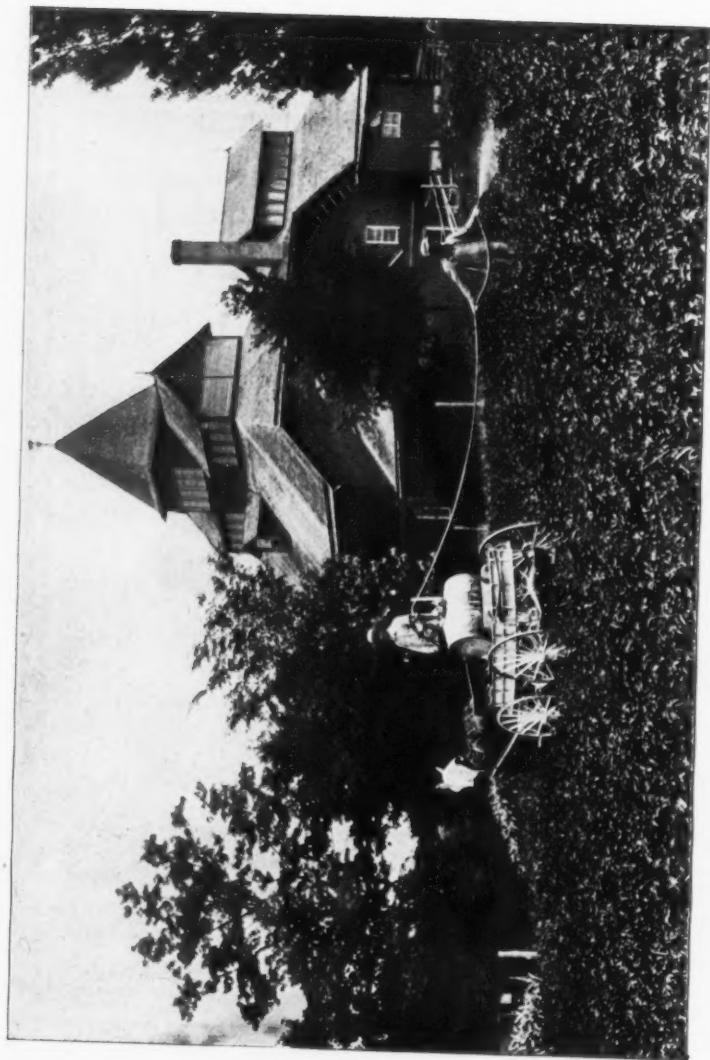
ADVERTISING RATES made known on application. We aim to advertise reliable firms only.

ADDRESS all communications to,

The Cornell Countryman, Ithaca, N. Y.

THE CORNELL COUNTRYMAN is not published by the faculty but by students of the College, and the students' pocketbooks pay for your sample copies. There are yet a few former students who have not subscribed. Let us be a unit. At least drop us a postal, and say you do not wish to subscribe, to stop this waste of good money.

BUSINESS MANAGER



ONE OF THE COLLEGE OF AGRICULTURE BARNS

THE CORNELL COUNTRYMAN

Vol. I

MAY, 1904

No. 6

THE OUTLOOK FOR AGRICULTURAL EDUCATION

III. IN NEW ENGLAND

By Rufus W. Stimson

President of the Connecticut Agricultural College

NEW ENGLAND is small in area. We are told, and convincingly too, since we are pretty good travelers, that the whole of New England could be dropped into one of the great states of the West or South, and still leave land within the state border for more than one good sized county. Nevertheless, each community has its peculiar characteristics. There is considerable diversity among the small states of New England. Our little area presents large local problems.

It is doubtful, in fact, if any one of the presidents of the land-grant colleges in New England is prepared to speak authoritatively regarding the whole New England outlook for agricultural education. Here, as in other parts of the country, each land-grant college has been permitted, if not actually encouraged, by the central authorities at Washington to develop in such a way as best to meet the demands of its own state. In the application of its Federal funds each state has sought to solve its own peculiar problems. What one may say, therefore, will doubtless be found to reflect better the conditions of his own locality and the institution he represents than the conditions of New England at large.

With this note of warning, or, if you please, of introductory apology, certain observations may be written.

In New England, agricultural education must always meet three distinct tests. And the first is the test of the college.

New England at its best is devoted to advanced education as a serious pursuit. It is noted for its theologians and

philosophers, its scientists and historians, its statesmen and its men of letters. For scholarly aspiration it has been marked from the beginning. Of this more than one visitor at Harvard College has been eloquently reminded as he has paused to read on the tablet beside the college gate the following inscription:

"After God had carried us safe to New
England and wee had
Builted our houses,
Provided necessities for our livelihood.
Reared convenient places for God's
worship
And settled the civil government,
One of the next things we longed for
And looked after was to advance
learning
And perpetrate it to posterity."

The New Englander of culture and means still dies in disgrace who dies without a bequest for the furtherance of liberal education. High scholarship in New England is not merely a badge of honor, it is a mark or respectability.

So pervasive is this atmosphere that it colors all our scholarly pursuits. And our outlook for agricultural education is bright or dark, here or there, in proportion as our agricultural educators exhibit high attainments in their departments of scholarship, and in proportion as the baccalaureate degrees awarded our graduates represent the achievement of a distinctively baccalaureate grade of education.

The second test which must be met by New England agricultural education is the test of the factory. Here the hum of the mill and the clanking din of the shop are incessant. Our little corner of the country is the home of myriads of mechanics, inventors

and improvers of machinery, producers of countless products of utility and ornament; it has long been noted for the variety of its attractive and indispensable articles of commerce. The Yankees are no less famous for their ingenuity than for their wide-awake progressiveness in manufactures; their boots and shoes, their fabrics of cotton, wool and silk, their rubber and paper goods, their finished mechanisms and their metal work in silver and copper, brass and steel are known and valued world-wide.

New England, that is to say, is not less a great, earnest college than it is a great, busy factory; the fame of our scholars is scarcely broader than the good reputation of our mechanics. And the measure of success in the mechanic arts is notable skill and enthusiastic, unremitting energy in the production of marketable articles. Our factories are perpetual schools of skill and aggressive enterprise.

The result is that agricultural education in New England, as a means of advancing the production of improved agricultural commodities—and this is an essential element of its activity—must continually be measured by the degree of skill and effective energy it exhibits in its results when these are subjected to this second test, the test of the mechanic arts. And the outlook for our agricultural education will be bright or dark in proportion as this measurement is favorable to it or the reverse.

The third test is the test of the home. The nature of a home waits, in some degree at least, upon the revenue of the head of the family; it waits, also, upon the prevailing taste of the leading members of a household. Taste is largely a matter of education, revenue depends in the main either upon education or upon skill, perhaps upon a combination of the two. This third test is not, however, merely secondary to one or the other of the first two; rather, as here regarded, it is independent of both. The question here is, does the normal life of the farmer result in as good a home as the normal life of the scholar or that of

the mechanic? Give the farmer scholarship, give him also skill and enterprise in production and marketing, what sort of life is his home life? Is the best agriculture as a calling, on the whole, coarsening in its tendencies, or, on the whole, refining? How, in the balancing elements of vigor and refinement, does the home of the average farmer compare with either the home of the scholar or the home of the mechanic?

There is, perhaps, no test to which a New Englander is more acutely sensitive than a comparison of his home with that of another. Agricultural education must make possible a pleasant comparison between the home of the educated farmer and the home of his fellow New Englanders who follow other pursuits or professions; and the outlook for New England agricultural education will be bright or dark, in one locality or in another, in proportion as it makes such a comparison either pleasant or the reverse.

In these observations it will be seen that the peasant farmer is left out of consideration, as are also unskilled laborers in general. Also, whatever antagonism may exist in certain cases among what may be termed old-line farmers toward the new is left out of account. Comparisons can properly be drawn only where there are at least certain points of resemblance. New England agricultural education in general is vitally involved with whatever makes for high scholarship, skilful enterprise and a good home. Comparisons in these matters are inevitable; they are, indeed, to be courted by all who prize rural life and are working for its welfare.

It is probable that each of the land-grant colleges in New England,—the special sponsors here for agricultural education, is more or less acutely conscious of this three-fold test of its success, and to the best of its ability is endeavoring to meet it.

Responsive to the demand for respectability in relative standing among the other higher institutions of learning, it is noticeable that our agricultural colleges are conferring the degree

of bachelor of science, and are uniformly maintaining the high standard for admission to B. S. courses customary among the greater number of the New England colleges. One, at least, is even conferring the degrees, M. S., and Ph. D., for advanced study of a high order in one or more branches of agricultural science.

If there is a danger in this rule of effort, it is that the purely scientific interest will predominate to the exclusion either of training in the practical operations which demand first of all skill and intelligent enterprise in the production of improved agricultural commodities for market, or to the exclusion of those elements of broad education which make for the best type of New England homes. This danger, however, is, apparently, clearly recognized. In the college where the highest degrees are conferred, as well as in our other colleges, supplementary shorter courses are being given in which the primary object is skill and business methods. Among these are courses in dairying, pomology, poultry culture and truck gardening. In at least one college, parallel with training for farming, courses in home economics (domestic science and art), and in general education, open to young women, are being given. In this case the young men and the young women attend the same classes in such studies as Latin, English and German, political economy, history, botany, physiology, chemistry, physics, mathematics, geology, entomology, ornithology and music. This College expects to supplement its work still further the coming year, by giving another parallel course of two years of preparation for rural school teaching, or the special teaching of nature-study, open to graduates of high schools. In this course the pedagogy of nature study will be given the greatest prominence in the interest of the intelligent and skilful teaching of the children of those who love rural life, or whose lot has been cast in rural communities. This college, also, the coming season will hold its third annual Summer School for teachers and others in na-

ture and country life. All of our land-grant colleges provide and insist that large elements of liberal education be had along with their training in the science and practice of agriculture.

The land-grant colleges of New England are no less potent in the influence they exert upon those phases of agricultural education represented by the agricultural press, the granges and the farmers' institutes. Our professors are continually called upon for making current and easily available for the average farmer the results of scientific agricultural research,—few papers are published without articles from their pens, few programmes of speakers are made up without including one, or several of them. Indeed the demand for help through these more popular aids to agriculture is greater than our colleges can well supply, without putting in jeopardy the first duty our professors owe to their college work proper.

We have much yet to do in maturing research for alleviating local difficulties, in devising improvements in practical operations, and in perfecting our teaching methods both at the colleges themselves and in the more popular work of press, grange meetings, and farmers' institutes. But judging from the steadily increasing attendance at our colleges, from the demand for our graduates which at present we are far short of being able to supply, and from the widely developed confidence in our men, methods and results among practical farmers, it is safe to say that, among our leading people of the distinctively agricultural vocation, the outlook for agricultural education was never so bright as it is to-day. In all this we find that marked progress has been made.

If we continue earnestly and intelligently to work, we may modestly wait for the judgment of another day upon the relative standing of our calling and of our home life when tested by the standards of our neighbors in other pursuits and professions.

To be sure, we have more or less radically reversed the point of view

of the old inscription on the Harvard gate. So, for that matter, has Harvard herself. Educators in New England in general and the rank and file of our best citizens, look upon education, not less as an end in itself or as something to be "perpetrated to posterity," but more as a sound means to improved vocational efficiency and to better, fuller, more gentle and more intelligent living in our own day and among ourselves. Not after, but before we settle the civil government,

do we long for and look after education; not after, but before we build our houses, provide necessities for our livelihood, and rear places for God's worship, do we cherish it.

Posterity must put upon the heritage we bequeath its own appraisal. Posterity, we believe, will accord us high gratitude for the educational gains we are achieving. In working for to-day, we are not unmindful of the days to come.

SANITARY MILK—ITS FUTURE

By R. A. Pearson

Professor of Dairy Industry

IT is only within the last ten or fifteen years that we have heard much about the need for more-sanitary milk for our markets. And it is only within the last five or ten years that we have seen much accomplished along this line. The old idea of pure milk,—and this idea still prevails in the mind of the majority,—was that it should be unskimmed, unwatered and free from foreign substances, such as coloring matter and preservatives, besides being "sweet," free from bad flavor, and reasonably clean. Little else was considered. This view, which now is seen to be very insufficient, has been carried into the laws governing market milk and into the official milk control, and often to such an extent as to exclude attention to equally or more important features.

The new idea of market milk gives special weight to its sanitary condition. Bacterial contamination is not considered less important than faults in composition, although the latter have so long been held foremost. It is found that the wholesomeness of milk is affected by the manner of its production. It is an article exceedingly well adapted to bacterial life, and, as dairy work is ordinarily carried on, there are literally scores of ways by which the tiny organisms obtain entrance. Certain pathogenic bacteria

find milk an ideal habitat. If they are conveyed to it by a sick person or animal or by a person who has come in contact with a patient suffering with a contagious disease, or if they are conveyed to it by water used to rinse the milk utensils, or otherwise, they may infect the milk consumer. But such contaminations are not common and harm from them is far less than that due to the many forms of non-pathogenic bacteria that cause milk to sour, putrefy, and undergo other changes some of which are not observed until their evil effects upon the consumer are in evidence.

Milk produced and handled in a careless manner will be found often to contain a million or more bacteria per cubic centimeter,—so rapidly do they get into milk when conditions are favorable and so rapidly do they multiply after entrance.

But one who will follow the rules of sanitary science in the management of his dairy can easily produce milk which will contain only about one one-thousandth as many bacteria as just named and with reasonable certainty that pathogenic bacteria are wholly excluded. It is worth while to make such milk? It means a high grade of intelligent management and and some increase in cost for labor.

The future for this advanced or modern branch of dairying is promis-

ing. The change may seem to be coming slowly, but when one compares the situation of to-day with that of fifteen years ago, it is seen that much progress is being made. Then it was a great exception to find a dairy conducted in a strictly sanitary manner, indeed there was none to equal numerous dairies supplying milk to many of the larger cities at the present time. One evidence of the increase in the number of these "sanitary" dairies is the fact that during the last few months the Cornell Dairy School has been asked to recommend more of its

decade numbers of reports and general articles have been written upon this subject and they furnish convincing proof that the quality of much of the milk supplied to the cities is not as good as it should be.

It would seem that any dairyman or milk dealer making an earnest effort to furnish a good, clean article of milk and to serve it in a reliable manner, would have more trade than he could attend to. Unfortunately this is the case only in exceptional instances. Perhaps the chief drawback is the unwillingness of the public to pay a fair



A SANITARY DAIRY

students than were available for responsible positions in these places.

The public is being slowly educated to see that the public health depends in large measure upon the character of the milk supply, and gradually a demand for better milk is being developed. To more than anything else, this change is due to recent extensive bacteriological investigations of market milk and the attention recently given the subject by physicians and other scientists who have observed in actual tests the advantages of sanitary over unsanitary milk. Within the last

price for high grade milk. Every one acknowledges the importance of milk as a food product and of course it is well known that it is often the exclusive diet of young and delicate children and of invalids, and that it is generally used in the raw state, yet very few will pay enough extra for their milk to enable it to be produced in a way that would satisfy them if they would take the trouble to look into this important phase of the business. This seems the more remarkable when it is remembered that the public appreciates and is willing to pay

for high quality in almost all other commodities. In countless households there is never a thought of purchasing any meat but the highest priced cuts or any food other than the best the market affords, except milk, which is looked upon as being the same wherever it comes from or whoever sells it, therefore a low-priced milk is sought. Every householder ought to know that milk is a most delicate product and subject to many kinds of contamination in many different ways, and if these are to be considerably reduced or entirely avoided the cost of production will be increased. And the cost will be increased in constantly greater and greater proportion as the contamination is decreased. Up to a certain point many dairymen could improve their milk without noticeable increase in the money cost of production. But even this improvement should be paid for by the consumer because it is the result of extra intelligent effort and supervision which are high-priced commodities. When so high a quality of milk is wanted that much extra labor is required in its production in order to reduce bacterial contamination just as far as possible and assure a wholesome composition at all times, then the cost of production is increased one, two or three cents or even more per quart. The increased cost is due to increased vigilance over the health of the cows and of the employees who

handle the milk; the increased labor of keeping the cows and their surroundings and all the surroundings of the milk clean and in good order; the thorough sterilization of all utensils; the frequent renewal of utensils; and the use of an abundance of ice. Almost everyone would want his milk handled in the most approved manner as indicated if he were familiar with it and the usual procedure. Up to the present time only a small part of our population has been "converted" to the new idea, but the subject is constantly getting more and more attention and it has been developed far enough to prove that the movement for better milk will continue to go forward and not backward.

One of the most efficient agencies for promoting the interests of sanitary milk is the so-called Milk Commission. Such commissions have been organized in some of our larger cities, by physicians who are interested in pure milk primarily because they want it available for their patients. The Commission closely supervises the production of milk at dairies operated under the terms of an agreement that insure a first-class product and gives its official approval to such milk, thus removing much cause for doubt that would naturally come into the mind of the consumer as to whether or not the milk was really produced in the manner claimed.

AGRICULTURAL ENGINEERING

By S. Fraser

Instructor in Agronomy

THE subject of agricultural engineering is not yet taught in good pedagogical order. It has recently been recognized as a course in a few of our agricultural colleges, and is defined in Circular 45, Office of Experiment Stations as "the science and art of laying out farms, designing and constructing farm buildings and works, and making and using farm implements and machinery." From this definition, we may divide the work

into two distinct sections: 1, Estate work, including rural architecture and road making, etc.; 2, Farm mechanics, the making, usage and care of farm machinery and implements.

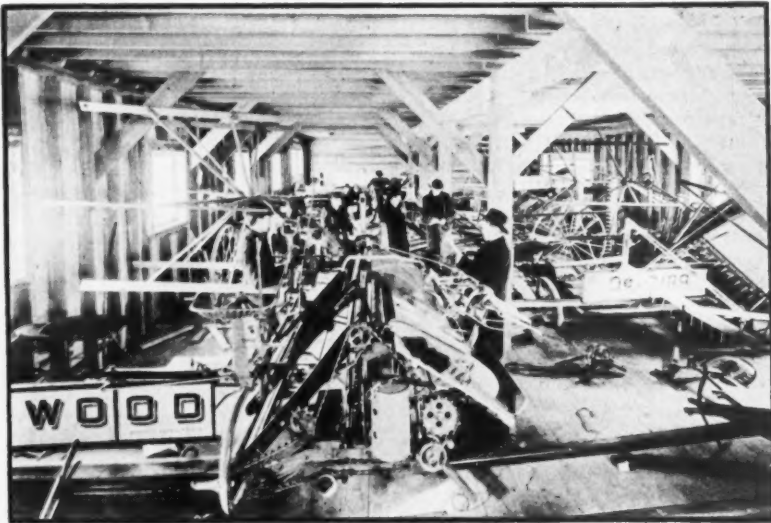
The average value of the land of a farm in the United States is \$2,285, the buildings on it being worth \$643. The average value of the land of a New York farm is \$2,431, that of the buildings on it being \$1,505 more. The total value of the farm buildings

of the United States in 1900 was \$3,560,198,191, quite an imposing sum. New York farmers have \$336,000,000 sunk in buildings, or nearly one-tenth of the total in the United States, and \$56,006,000 in machinery. No other state has so much capital in buildings, and Iowa, with \$57,960,000 is the only one having a larger sum in implements; Pennsylvania with \$50,917,240, Illinois \$44,977,310 and Ohio with \$36,354,150 are the next leading states.

The importance of labor saving machinery is shown by the reports issued by the Department of Agriculture. In

export any agricultural produce.

The total value of the implements and machinery on the farms of this country in 1900 was \$761,261,550, an average of \$133 per farm, or 90 cents per acre of farm land; in 1850 the value of implements was \$151,587,638 or 52 cents per acre. About \$100,000,000 worth of machinery is now purchased annually by our farmers. It takes 1,000,000 plows per year to supply the demand, and nearly 500,000 harrows and the same number of cultivators. During the two decades, 1880-1900, the average number of acres of land per male worker in-



A CLASS IN FARM MACHINERY

1830 it took over three hours' labor, costing $17\frac{3}{4}$ cents, to raise a bushel of wheat; in 1896 it took ten minutes, costing $3\frac{1}{4}$ cents. Hay growing is an important business in New York; in 1860 it took $35\frac{1}{2}$ hours labor at a cost of \$3.00 to grow and bale a ton of hay; in 1894 it took $11\frac{1}{2}$ hours, costing \$1.29 for labor. The total saving in labor in the production of the seven crops: corn, wheat, oats, rye, barley, potatoes and hay, in 1899, compared with the old-time method was \$681,471,827, all due to the utilization of modern machinery and methods. In other words without our present devices and ways we should be unable to

creased from 23.3 to 31 acres, or 34%; and the number of horses worked per male increased from 1.7 to 2.3, or 35%. In other words, labor saving machinery increased the area of land that one man can work 33%. To effect this increase, the farmer has not expended a larger proportion of his capital in implements; in 1850, 3.8% of his capital was sunk in this manner, while in 1900, the amount so expended is given as 3.7%; hence we presume that our modern tools are more efficient.

Estimates based on observation, show, that farmers are so careless with tools that on an average the life work

of a plow varies between 150 and 250 acres. If a plow costs \$10, and it plows 200 acres, the cost is 5 cents per acre. We have about 9,000,000 (estimated) plows on all farms, and last year, these plowed about 180,000,000 to 200,000,000 acres, averaging about one plow to 20 acres of plowed land. Some machinery is quite elaborate and complicated. A modern grain binder consists of over 700 distinct parts. Such machines require considerable skill to operate. The losses on the farm from unskillful handling and neglect are enormous; thus, on one farm I know, a man has a "Farmer's Favorite" grain drill he bought 15 years ago, and it is practically as good as ever, while his neighbor has bought three in the same time. It is necessary to discriminate between being careful with machinery and using antiquated machinery. It is folly to use antediluvian types of implements. No farmer can afford to do so.

European nations, while not using implements so efficiently as we, are paying considerable attention to their study. The Agricultural High School at Berlin has a well developed and efficient department of farm machinery; Scandinavian and Russian agricultural authorities and colleges realize the importance of instruction in these lines. I do not know a single British agricultural college that has one man devoting his whole time to the study of farm mechanics, although it has been in their curriculum for many years, and much valuable information

is derived from tests of all kinds of machinery at the various agricultural shows.

Professor King of Wisconsin is credited with being the first American to give instruction in farm machinery. Among others the following colleges now have courses and state appropriations for this work: the Iowa Agricultural College at Ames, has recently erected a four-story fire-proof building, costing with equipment nearly \$70,000; the Wisconsin College has a state appropriation of \$15,000 for a farm engineering building; the North Dakota and Illinois colleges have had a course for some years; the Minnesota College has an appropriation of \$5,000 for a building, and has the use of a large building for storage of implements. A course of one semester has been introduced in our own college, and two floors of the south barn are now occupied with implements loaned by various manufacturers, for instructional purposes. This building would accommodate but \$3,000 worth of implements, and an offer of about \$3,000 worth more is held in abeyance until more commodious quarters are obtained. The plan is that the implements will be taken apart, set up, adjusted and used for draft tests and trials in the field, to demonstrate their uses, methods of manipulation and principles of construction. Although the beginning is small, this course is one in which, on account of the interests at stake, developments must come.



STUDENTS MAKING THE FOUNDATION FOR THE JUDGING PAVILION

SOMEWHAT ABOUT JAMAICAN FARMERS

By Scott Perky

I PRESUME our readers would not be at all interested in statistical statements about Jamaica, and lists and descriptions of the agricultural products thereof. In their conception, I may suppose, as it was in mine until recently, Jamaica has an indefinite existence, or, at the most, is a small island nonentity situated in the Antilles. To be sure, extensive advertising has recently brought the Island to notice as a winter resort. This advertising is not concerned with its economic importance but with its entertaining qualities. Consequently pleasure-seekers are there in considerable numbers. This indefiniteness about Jamaica makes me feel that the registering of a few impressions of more or less general application will be more acceptable than any attempt at comprehensiveness.

The population,—which, by the way, is always the most important feature of well populated countries,—is largely black, a large proportion, also, is colored, while but about 15,000 out of a total of over 700,000 are white. For years the Island has belonged to the English, and their language and institutions are universal. The character of the population is mostly due to the slave trade with Africa, which was in full blast until somewhat less than a hundred years ago. In 1834 the abolition of slavery opened the way for the free develop-

ment of the dark peoples, but committed the Island to a condition of economic anarchy that in large measure ruined many of its agricultural industries. The people, through the use of simple but mistaken logic, misconstrued the meaning of liberty, and proposed to imitate the indolence of "massa" to the neglect of their own interests and therefore of those of the state. An unconquerable suspicion of the white man led the negro to unduly question his every motive, and the fear that on

every hand traps were set for his re-enslavement was sufficient to make him shrink within himself and raise or steal the food necessary for existence and contentment. The white man himself, brought up as master, looked upon these novice-freedmen with contempt, and long resisted with all the intensity of extreme prejudice those who saw large possibilities

in the negro and wished to develop them. Thus for many years prosperity was thwarted, and in the absence of this agent the missionaries and some few others alone contended against a relapse of the negro population to barbarism, while the enlightened thought at the world-centers very slowly found its way to this distant corner and more slowly still effected any change in insular opinion.

At length there became evident a very gradual awakening, and the assumption of a more liberal attitude to-



A PRIZE HOLDING AND ITS OWNERS

ward the negro was manifest. Law-makers became more considerate of his rights and observant of his needs, and educational facilities were improved and extended. To-day a strong liberal element among the whites asserts that Jamaica is preeminently a black man's land, and that therefore the government should be chiefly concerned with advancing his interests.

In view of this it should be interesting to inquire somewhat about the present condition of the agricultural population. Jamaica, it need hardly be said, is almost entirely agricultural. Excepting the capital city there is no large town on the Island. Little manufacturing is done, and the villages and port towns exist largely by virtue of their utility to agriculture. The population is gathered rather densely wherever the soil is readily remunerative, but small culture is carried on by surprising numbers in rugged and difficultly accessible parts of this mountainous Island, where it would sometimes seem as if the soil must be diligently searched for between the rocks. The coastal and upland plains still have many of their large plantations worked by hired labor; but the valleys and uplands are witnessing a very general breaking up, though rental and sale to many small farmers. Five, ten and twenty acre holdings are very usual, though many have less as well as more. The people generally live in small houses; or, to our way of thinking, shanties, but in prosperous communities, house enlarging and improvement has been going on for some years. Among the small holders one finds great differences in the standards of living,—differences that may be attributed in large part to degrees of intelligence rather than to unequal means. The people themselves are not particularly different in appearance from those in our South. If anything they have milder features and gentler ways. I suppose these differences are due in part to differences in race or the mingling of races, in part to climatic differences, and

probably in large measure to the civilizing influences of a dense population. Their faults are those of a primitive people. Their vices are simple and often impossible for them to understand as vices; and indeed we must expect this year to be so, in some measure, for our code of ethics would in several respects be "foolishness" to the natives of the tropics. It must not be forgotten that there are many cases of high intelligence among the blacks, and more frequently still among the colored people, but in this short article, the average of the farming population can alone be considered.

The accompanying photograph of an old couple is, to the writer, very interesting. Slaves together on a plantation, they married a year after slavery was abolished, in 1835, and just now,—perhaps both over ninety,—they have earned a government prize for the best holding of five or less acres of farm property in their parish.

These prizes are small amounts, as 5, 10 or 15 dollars, and framed certificates which are presented to those gaining the first prize. The judges take into consideration almost every feature about the holding,—not only the character of the plantings but the general neatness of the place, the character and cleanliness of the house, the character of the flower gardens, fences, etc. There are first, second and third prizes for holdings up to five acres, up to ten acres and up to twenty acres.

An important trend in Jamaica to-day is the increase of small holdings and the embarrassment and the breaking up of many of the large plantations. The causes of both may be readily explained, though they can hardly be mentioned here. Plantations of products like sugar-cane and coffee, which require handling on a large scale to be profitable, have to contend with active competition elsewhere, and in case of sugar, the beet sugar competition is most disastrous. The ability to compete is frequently in large measure impaired by the use of out-of-date methods and machinery,

but is also in large measure directly impaired by unsatisfactory labor conditions. Plantation labor is unreliable in many ways. It is largely quite unskilled, most unintelligent and indifferent to results. With money in pocket the laborer shirks his work, and reappears only when his needs require it. Of course, there are many exceptions; but the unreliability of the workers is too generally complained of to be considered the exception instead of the rule. The laborer most frequently has a plot of ground to himself, and it is found that this detracts seriously from his other work. Cane must be cut and hauled to the mill at certain times; coffee must be picked every few days. An unanswered call for workers has frequently witnessed spoiled crops and disheartened growers.

There appear to be two main causes for unreliability,—the love of ease and the preference for one's own property. There might also be mentioned two negative causes, low wages and lack of stern supervision. There is no doubt that the preference for one's own land has a very large influence on Jamaican labor conditions. The lessening of the large plantation area is accompanied by a proportional increase of small holdings, where families raise their yams, cane, corn, cocoa, cocoanuts, ginger, bananas and plantains,—enough for themselves and for the women buyers, who carry loads of produce on their heads to market.

Under the present individual system it is not economical for them to raise much sugar-cane or much of any product that requires expensive preparation for market; but there are several products of export, as cocoa, for example, that can be raised to great advantage by the small grower. The future is one of promise to him who will work a few acres industriously and intelligently. It may readily be seen why the worker prefers his own ground, and why Jamaica is becoming preeminently a country of small holdings. They suit the economic condition best, and accord more nearly to the negro's new conception of liberty.

It is not considered intelligent there to be very hopeful in regard to the negro population. There is one thing to be said; Jamaica affords an unusual opportunity for the happiness and perhaps for the civilizing of a black people. With a government that will be more considerate and intelligent than it has been in the past, and with schools in sufficient numbers that will not long neglect the agricultural features in education, we can reasonably expect a gradual improvement in the people, who, living within earshot of each other along the excellent highways, must learn the requirements of social intercourse and the advantages of industry, while content with the society and diversions of a compact rural community.

Flower in the crannied wall,
I pluck you out of the crannies :—
Hold you here, root and all, in my hand,
Little flower—but if I could understand
What you are, root and all, and all in all,
I would know what God and man is.

—Tennyson.

THE ANIMAL INDUSTRY EXCURSION

By H. Truckell

Professor Wing, Professor Foord of Delaware and a party of students went to Syracuse last month, to inspect dairy herds in that vicinity. We were met at the station by Mr. Wing R. Smith, who took us by trolley to his farm. Mr. Smith has a remarkably uniform herd of Holsteins and we found much of interest around his establishment.

The next morning the party journeyed to the Village Farm at Liverpool and studied Mr. W. C. Hunt's herd. To encourage the students in Animal Husbandry, Mr. Hunt offered prizes of \$10 and \$5 for competitive judging. A ring of two-year-olds and another of four-year-olds were the subjects. The animals were closely matched and the contest was close and interesting. Mr. Walter Ira Thompson of Holland Patent won the first prize with Mr. Jay Clark Hungerford of Ithaca second.

We then went to Moyerdale to inspect the great collection of cattle headed by Sir Korndyke Manor De-Koel, and including nineteen cows. Each of these cows has given over 16 pounds of butter fat in one week. The barn arrangements called forth the admiration of the party, while the spic and span beauties seemed to be proud of the comments they received. Mr. H. A. Moyer is to be congratulated upon both the buildings and their occupants. Cornell men were met at each place as each herd was being officially tested.

The Brown Swiss herd of Mr. Hazard was last visited. There a different type of animal was seen. The large size, docile yet vigorous appearance of these, called forth favorable comment.

Owing to illness in the family of Mr. Dawley of Fayetteville his fine Jerseys were omitted from the list.

The consensus of opinion among the students was that the trip was all too short. The kind and generous

treatment received from the various owners, the absence of reserve and the freedom with which business questions were answered, made us wish that the trip could be repeated. It is to be hoped that the little excursion will be extended and become at least an annual affair. The knowledge acquired by the judging practice, and the observation of the methods of practical business men, who are making a success in the profession, will be of inestimable value to the future farmers and breeders.

After the journey a vote of thanks was given to the various owners for their courtesy and kindness and especially to Mr. Hunt for his kindness and generosity in offering the prizes for judging.

VOLUNTEER ORCHARDS

By C. S. Wilson, '04

Last year a volunteer orchard movement was started for the purpose of establishing the value of certain varieties of apples which at the present time are not considered commercial. The method asks for volunteers of two kinds: (1) the nurseryman who will volunteer to furnish the trees and (2) the man who will volunteer to grow the orchard.

Last year a beginning was made by the establishment of two volunteer orchards. This year six additional orchards are being set. The size of the orchard is variable. It will not be less than one acre and usually does not exceed a capacity of 100 trees. The leading varieties which are being tested are: Spitzenburg, Sutton Beauty, Rome Beauty, Wealthy, Wolf River, Dutchess, Mackintosh, Salome, and others. An agreement is entered into between a committee of the Western New York Horticultural Society and the planter of the orchard which provides for the proper continuance of the experiment. The work is in charge of the Western New York Horticultural Society. Professor Craig is the chairman of the committee.

EDUCATION FROM A SPECIAL TRAIN

The special railroad train as a factor in farm education is the newest thing in Iowa. The Rock Island has invited Professor P. G. Holden, at the head of the department of agronomy of the Iowa College of Agriculture, to tell the farmers along the line of the road in that state the importance of selecting good seed corn and explain how it can be done. He will also impress upon them the importance of testing all seed this year.

For this purpose they have placed a special train at the disposal of Professor Holden, and in company with George A. Wells, secretary of the Iowa Grain Dealers' Association, will make a three days' trip over that part of the state where the most good can be accomplished.

Mr. Wells has arranged a schedule and the farmers in the neighborhood of the respective stations have been notified and will be present when the train arrives to hear Professor Holden talk. He will speak about twenty minutes at each place, showing with ears of corn and large charts good and bad types of seed corn and will explain how to select, sort and test corn for this spring's planting.—*Chicago Record-Herald*.

THE "UNLOCKING" OF STRAW

By Christian Bues, '06

Reviewed from "Deutsche Landwirtschaftliche Presse," March 23, 1904

Dr. Franz Lehmann of the agricultural experiment station at Goettingen, Germany, reports a simple process to increase the palatability and digestibility of all kinds of straw and chaff. The quintessence of his method is:

"100 parts of straw are mixed with 200 parts of water and 3 to 4 parts of caustic hydrate of soda, and then in a suitable steaming apparatus steamed from 6 to 8 hours under slowly rising pressure; which must reach 6 atmospheres. Besides the splitting of the chemical compounds qualities have been developed in the finished product, which make it agreeable to the taste and smell of cattle, thus increasing the palatability. By this steaming process the digestibility of oat-straw was raised from 38 to 66 per cent, of wheat-chaff from 31 to 69 per cent.

Three pens of sheep containing four head apiece were fed the same grain ration and in addition straw. Two pens received their straw soda treated, the third untreated. Pen 1 consumed 926 g., pen 2, 983 g., while the desires of pen 3 were satisfied with 268 g.

According to Professor Lehmann 1000 g. of treated straw (air dried) and 170 g. of cottonseed meal equal 1400 g. of clover hay in feeding value.

Two steers, fed on an average of 19 Kg. of soda treated straw (damp) with an additional small grain ration, gained about 120.5 Kg. from Oct. 27, to Feb. 18, or about 1.06 Kg. per head per day.

The first cooker built for the purpose furnishes feed for 100 head of full-grown cattle, cooked fresh daily. While this process may not be a paying proposition in the Western United States with its cheap hay, the experiment stations of the East might look closer into the matter.

In Germany the sugar factories manifest a great interest in the process and it might well be worth while to investigate it in view of a possible co-operation with canneries or similar seasonal power establishments.

"Is this a time to be cloudy and sad,
When our mother Nature laughs around,
When even the deep blue heavens look glad,
And gladness breathes from the blossoming ground."

The Cornell Countryman

G. F. WARREN, Editor

SCOTT H. PERKY,	- - -	Associate Editor
R. W. CURTIS,	}	Alumni Editors
G. N. LAUMAN,		
MARY C. SHEPPERSON,	}	Assistant Editors
C. S. WILSON,		
CHRISTIAN BUES,	- - -	Business Manager
W. I. THOMPSON,	}	Assistant Managers
L. F. AYER,		
P. E. CLAPP,		

MAY, 1904

The Outlook for Agricultural Teaching

We publish in this issue the third of the series of articles on "The Outlook for Agricultural Teaching." It is encouraging to hear these words of good cheer from the Empire State, from old New England and from the old-new South. We have yet to hear from the Middle West where the most phenomenal growth in agricultural education has taken place.

For many years after the passage of the Land-Grant Act, the agricultural colleges failed to reach the people. There was no system of agricultural education and there were no trained instructors. The people were so filled with the land grabbing and land skimming idea, as they scurried on from virgin field to virgin field that they gave little thought to agricultural education. Anyone could farm, for farming meant soil-robbing.

But all this has now changed. Land has so advanced in price or decreased in fertility that it must be well farmed, if it is to pay. To be successful requires not only good business ability, but a knowledge of the applications of science to plant and animal production. If he is to face the future without a handicap, the young farmer requires just as thorough training as does the lawyer.

But the change is not all due to farm

conditions. Many of the first professors of agriculture were either farmers who knew how to raise "bumper" crops, but who knew nothing of agricultural science; or they were scientists who knew nothing of farming. Neither of these men could reach the farmer effectively. The former had little to teach. The latter added the word "book-farmer" to our vocabulary. Gradually the farmer-teacher learned science and the scientist learned practice, until to-day we have a definite system of agricultural education, with teachers whose words carry equal weight with the farmer and with the scientist.

Little progress seemed to have been made till a few years ago, but the foundation was being well laid. The number of students has now begun to nearly double every year. According to careful estimates, over a million farmers attended farmers' institutes last year. From all over the country come reports of successful winter courses with students in such numbers as to embarrass the institutions. Still shorter courses with larger numbers have been common. In one state over 1,000 farmers attended a two week's course. Our own winter course students have recently left to carry new ideas to the farms and creameries of the state. The attendance this winter was 30 per cent above that of last year. The Minnesota School of Agriculture has just closed with an attendance of nearly 600. This is a three year's course that takes students direct from the rural schools and returns over 90 per cent of them to the farms. Several other states have similar schools in connection with their state universities. Alabama has ten agricultural high schools,—one in every

assembly district. Wisconsin recently established two county agricultural high schools. These are so successful that the last legislature made provision for additional ones. These things are but the advance guard of what is to come. Now that the farmer has come to see the value of agricultural education, the only limit to the attendance at these schools is the capacity of the buildings.

Nature Study in the Rural Schools

Nor is this activity confined to colleges. Nature-study is also getting on a good teaching basis. The mistakes of the days when this was a fad are being rapidly corrected. School gardens are coming to have an actual existence outside of books. Elementary agriculture is securing a place in rural schools and high schools. Several states now require their teachers to pass an examination in nature-study or agricultural subjects or in elementary agriculture. These subjects also appear in several state courses of study. North Carolina, Virginia and Alabama have adopted "Agriculture for Beginners" as a regular text book in the public schools. Louisiana has just adopted the same book with the addition of a chapter on sugar-cane. Georgia also requires elementary agriculture to be taught.

This agricultural teaching or nature-study is not, as some have said, teaching a trade. It is of equal value to the child who leaves the farm and to the one who stays on the farm, for we are all farmers at heart. It will add to those sturdy qualities that so often make the farm boy successful in the city. It will make the one who becomes a farmer a better farmer, and will make his farm home a happy one. It is not to make farmers of

children who should engage in commerce, but it will help to stop the present process in the rural schools of unmaking farmers.

Reading Matter for Farmers

The amount of agricultural information imparted in the nature-study work will be small, but it will arouse interest enough so that the next generation of farmers will read more farm literature.

With such papers as *The Rural New Yorker*, *The Country Gentleman* and *The American Agriculturist*, the papers on poultry, dairying, horticulture, gardening and all the other branches of farming,—with these and the farmers' reading-courses and bulletins any farmer, who employs his long winter evenings in reading and who reads a little during the noon hour, can secure an education.

Every state publishes bulletins that are free to its citizens and that will generally be sent free to residents of other states who apply. Last year there were 373 of these bulletins and annual reports,—more than one for every day in the year. In addition to these there are the many publications of the Department of Agriculture. Many farmers and students do not know the extent and value of these publications or how to secure them. Every student and every rural school should secure the Yearbook, the Farmers' Bulletins, and the bulletins from their state stations, with such other bulletins as apply to their special work. Those who wish publications from the Department of Agriculture should write to the Secretary of Agriculture for the "List of Bulletins for Free Distribution," the "List of Publications for Sale," and should ask to receive the "Monthly List of

Publications." The free bulletins are sent to any address on application. Those that are for sale can usually be secured free from your congressman.

GENERAL AGRICULTURAL NEWS

The \$400,000 beet-sugar factory at Binghamton is to be removed to Idaho. Not enough beets are produced by the farmers about the present location to make the investment of that amount of money profitable. There is one other factory in the state, at Lyons. Sugar-beets have paid many of the farmers well. The manufacturers guarantee a price of five dollars per ton. Fifteen tons, and even more are often harvested from one acre.

* * *

One of the interesting exhibits at the St. Louis Fair will be a six acre map of the United States that is to be worked out with the representative crops of the various regions.

* * *

About 16,000 quarts of certified milk are sold in New York City every day, at from 10 to 18 cents per quart. A few years ago 2,000 quarts supplied the demand.

* * *

The Virginia Legislature has appropriated \$165,000 for an agricultural building and general improvements for the agricultural college.

* * *

September 27 will be apple day at the St. Louis World's Fair. Every person who attends the exposition on that day will receive three or four apples, neatly wrapped, and labeled with the variety name. Only the best varieties, such as Grimes Golden, Jonathan, Maiden Blush and Wealthy will be used. It is estimated that about 1,000,000 apples, or twenty car loads, will be given out.

* * *

The Minnesota School of Agriculture has just graduated a class of ninety, the largest in the history of the school.

The Iowa State Board of Agriculture has provided for a student judging contest at the State Fair of 1904. The winner is to receive a \$200 prize, or a scholarship at the Iowa State College.

* * *

The Texas Agricultural College will have a textile engineering building ready for use in August. The last legislature made provision for the building. It will be a model cotton factory. A two and a four year's course will be given. The former for training cotton spinners, the latter to fit men for the management of cotton factories.

* * *

A few years ago Warren Gammon of Des Moines, Iowa, started to establish a herd of polled Herford cattle. To secure the polled character, a cross was made with a polled breed. This, of course, excluded the offspring from registry in the American Herford Record. There are now about 275 of these cattle having nearly pure Herford blood and the polled character. But the fact that they are not eligible to record is a serious drawback. Therefore, an effort is now being made to start a "double standard" herd. It was found that there were in the United States 14 head of pure Herfords that were naturally polled. Most of these sports were bought and a herd started. There are at present about 20 head, and the polled character is fairly well transmitted. They differ from other pure-blood Herfords in the polled character only. The Wyoming Experiment Station has recently purchased a bull calf that has the greatest number of polled ancestors, three generations on the dam side and two on the sire side. It is interesting to note that Mr. Gammon first got the idea of starting such a herd from reading in Darwin's Origin of Species that variations or sports frequently have the power to perpetuate themselves. A wide correspondence revealed a polled Herford here and there, and by bringing these together the breed is being established.

CORNELL NEWS

CAMPUS NOTES

Before April 4th the Agricultural College had shipped seven winter lambs, ranging in weight from thirty-nine to fifty-eight pounds, at ages from seven to ten weeks, at an average price of eight dollars and seven cents each. They were sent to a New York commission house, and all except one were sold at, or above, the highest quotations. These lambs are kept on a fairly warm barn floor,—no better place than any farmer could prepare. The ewes are given rich milk-producing food for about two months. As sheep are commonly managed, they must supply milk for four or five months to lambs that sell for three and a half or four dollars. Professor Wing says that for New York state farmers, winters lambs are by far the most profitable kind of live stock.

* * *

The Horticultural Department has been testing some of the leading forms of power sprayers during the last few months. The gasoline pump made by the Deming Co., of Salem, O., has been in use along side the compressed air sprayer made by Pierce Loop Co. of northeast Pennsylvania, the wheel geared compressed air sprayer of the Wallace Machinery Co., Champaign, Ill., and the Niagara gas sprayer of Middleport, N. Y. The machines have been used in applying lime and sulphur and kerosene and water as a psylla preventive in the pear orchard.

* * *

Mr. C. C. Poindexter, secretary to Professor Hunt, has been selected as teacher of biology and agricultural chemistry and director of the department of agriculture in the Training School for Teachers at Cheyney, Pa. The school, originally known as the Institute for Colored Youth, was founded in 1837 under the management of the Society of Friends, and up to 1902 was located in Philadelphia. In 1902 the school was reorganized on

an entirely new basis, the object being "to develop a normal school which will correlate academic and industrial education." To this end the school has been removed to Cheyney, twenty-two miles from Philadelphia, and has for its site the old Cheyney homestead which comprises 117 acres of land. Agriculture will be made a prominent feature of the school. Although the farm will be run on a strictly economic basis, the chief end will not be profitable farming, but in conjunction with the stress laid upon nature-study, it will be the aim of this department to so train the student that he will carry into the communities where he teaches, high ideals of rural life. It is hoped that by this means a long-felt want will be supplied in the training of teachers for elementary and secondary schools, by inculcating better ideas of home life, thus bringing school and home into their proper relation of mutual support. The newly organized school will open its doors to students next September, when Mr. Poindexter will assume his duties above named. Mr. Poindexter graduated from the course in agriculture at the Ohio State University in 1903.

* * *

In view of the large number of students taking the poultry work, five different incubator companies have placed their incubators at the disposal of the poultry department. These are: "The Cornell," Chas. A. Cypher's "Model," the "New VanCulin," "Star" and "Sure Hatch." Several others are on the way or are promised. The department now has 11 different kinds of incubators. This gives the students a good chance to observe the merits or demerits of each.

* * *

H. H. Whetzel, A. B., who has acted as assistant pathologist in the extension department, has been advanced to the full position of assistant botanist of the Experiment Station. His appointment will take effect May 1, 1904.

Of the 43 students who took the winter course in agriculture three have accepted positions, all the others returned to their home farms. The 89 students who took the winter dairy course have been very successful in securing positions. There were more demands for men than could be filled. Under "Former Students" we mention some of the positions secured.

* * *

Mr. Hunn has a specially fine crop of forced strawberries this season. Former students will remember growing the Glen Mary and thinking it the finest berry there was for forcing. The crop this year is the President, and Mr. Hunn thinks it equal if not superior to the Glen Mary. The berry is larger, is finer in appearance, and ripens slightly earlier, although there are not quite so many berries on a plant. For the first time the local demand has been for pot plants to use for decoration. If one could take a peep into the forcing house and see the rows of big, rich red berries in contrast to their dark green leaves, he would be convinced that the strawberry is a thing of beauty as well as a joy to the epicure. Not long ago, Mr. Hunn furnished the berries for a dinner where a potted plant was set before each guest so that he could pick his own berries at the table. Here is an opening for someone near the large cities: grow potted strawberries and sell them through the florists. They brought \$2.50 per plant in New York at Easter.

* * *

Agricultural implement manufacturers have this year kindly loaned to the department of agronomy many farm tools. These are being used for instructional purposes. Of grain binders, we have the well known Deering and Osborne machines of the latest pattern, and Wood's New Century, which has given much satisfaction in the handling of heavy crops of grain in the United Kingdom. We also have the Deering horizontal and the Osborne perpendicular corn-harvesters; the Wood, Osborne and Deering mow-

ers; Deering rake, Osborne tedder, and the Deering shredder and husker. Among the planters there is the Curry corn-planter, improved Robbins' potato planter, and a complete line of the "Iron Age" garden tools; eleven types of harrows from Osborne, Buffalo Pitts, Clarke, Henderson, and Nash. The one-horse Osborne, Buffalo Pitts, Planet Jr., "Iron Age" cultivators, and the new sulky cultivator made by the latter firm make an interesting group. Besides the tools enumerated, there are many parts of tools, among which are wagon springs from Mandt, Wis., and twenty two-rod sections of fence from various makers. Making a total of over \$3,000 worth of material. As much more is offered as soon as room can be found for it.

* * *

The department of agricultural chemistry would like to communicate with any of the readers of the *COUNTRYMAN* who are using or expect to use any of the new, prepared spraying mixtures for insects and fungous troubles. They wish to know what mixtures are on the market that they may test their chemical composition and determine their value.

* * *

Professor Pearson has been appointed a member of the committee on organization for the United States for the International Dairy Federation to be held in Paris, 1905. This convention will be attended by representatives from all dairy countries.

FORMER STUDENTS

Ex '72, John P. Gage is at the head of the Gage Tool Company of Vine-land, N. J.

'90, B. S. A.—W. W. Root has taught in the Chicago Normal Training School, and at the same time has studied in the evening department at the Rush Medical College. Mr. Root received his M. D. degree March 18, '04.

'95, Winter.—Leddra W. Holt is senior member of the firm L. W. Holt and Brother, producers of crude pe-

troleum at Geneva, Indiana. Within the last few years, this vicinity has become one of the busiest spots in the Ohio-Indiana oil field.

'98, B. S. A.—Henry C. McLaflen '01, M. S. A., has just accepted a position as assistant in agriculture in the University of Wyoming and Wyoming Experiment Station, Laramie, Wyoming.

'98, B. S. A.—W. A. Stocking is assistant professor of bacteriology at the Connecticut Agricultural College, at Storrs, Conn. At a recent meeting of the Hartford Scientific Society, he delivered an address on "Milk Bacteria, their Relation to Health."

'99, B. S. A.—Henry W. Jeffers is superintendent of the Walker-Gordon Company's farm at Plainsboro, N. J.

'99 Winter.—Geo. B. Lamont is on the farm at Albion.

'99, B. S. A.—Chas. H. Yates writes from 626 Madison Ave., New York City. He is with the Walker-Gordon Laboratory Company.

'00, Winter.—Henry T. Moon is with the Wm. H. Moon Company, proprietors of the Glenwood Nurseries, Morrisville, Pa., with whom he started after leaving Cornell. The statement in our last number was wrong. As Mr. Moon says, it is difficult to gain accurate information about former students. We wish that all our readers would be prompt to correct our mistakes.

'00, Ph.D.—Wilhelm Miller, '92 A. B., University of Michigan, took his doctor's degree in horticulture, was assistant editor of the *Encyclopædia of Horticulture*, and is now editor of *Country Life*. Mrs. Mary Rogers Miller was for some time instructor in nature-study at Cornell. Mr. and Mrs. Miller reside in New York city.

'01, B. S. A.—Arthur G. Ruggles, who is assistant entomologist at the Minnesota Experiment Station is back for a couple of months of graduate work.

'02, Dairy.—Geo. W. Hamilton is living at Oneida, N. Y. Although at present he is not a farmer himself, he maintains a lively interest in agricultural affairs.

'03, M. S. A.—A. C. Beal is instructor in floriculture at the University of Illinois from which institution he graduated in 1897. Mr. Beal has charge of the agricultural greenhouses comprising 8,000 square feet of glass.

'03, Winter.—J. R. Bodurtha has gone to Vermont to manage the stock farm of Mr. Henry Holt, of New York. His address is Fairholt, Burlington, Vt.

'03, B. S. A.—Geo. E. Merrill, '02 B. S., N. H. College, left the University in the latter part of his senior year very sick with typhoid fever. He is now on his father's farm at Hampton Falls, N. H.

'03, Special.—F. E. Robertson manages the fifteen-hundred-acre trotting stock farm, for the Empire State Company at New Hudson.

'03, Dairy.—A. F. A. Schlotzhauer, who took the dairy course in '03 and was assistant in butter making and dairy mechanics in the '04 dairy course, was married Mar. 21, to Miss Alice Mae Brigham of Athens, Pa. The couple are living at Briarcliff Manor, N. Y. Mr. Schlotzhauer is foreman of the Briarcliff Farm's dairy, the milk from which retails at 12 cents a quart in New York City.

WINTER DAIRY CLASS OF 1904

Of this winter's dairy students the following have already sent in notice of their address and employment:

In Charge of Creamery

Leon S. Apgar, assistant manager, St. Albburgh, Vt.

Winfield E. Ayers, Berne, Schoharie Co.

Harvey L. Ayers, Huntersland, Schoharie Co.

S. M. Becker, N. Cohocton, Steuben Co., is operating a creamery which he has just built. His son, A. M. Becker, who also took the dairy course this winter is helping him. They expect to use hand separator cream collected from a wide area.

Lester A. Culver, assistant in creamery, Meridale, Delaware Co.

Wilson H. Darrow, Peru, Clinton Co.

Mervyn C. Doud, Louisville, St. Lawrence Co.

Grover C. Eaton, Marathon, Cortland Co.

Justus C. Farley, assistant in creamery, Candor, Tioga Co.

Fred W. Ferris, East Aurora.

Frank M. Fowler, Youngsville, Sullivan Co.

P. B. Hess, Roxbury, Delaware Co.

Wm. J. O'Neil, Jordan.

Murray L. Peryer, Irona.

John E. Pollock, assistant to John Smith, '97 Dairy Certificate, Leroy.

Edson E. Potter, Ellenburg Center.

H. E. Richardson, manager of creameries for Richardson, Bebee & Co., E. Aurora, Erie.

H. N. Roberts, Mayville, Chautauqua.

Peter D. Roseboom, York, Livingston Co.

Delmer S. Rowe, Avon.

Harvey L. Seeley, operating a creamery which he has built at Lakeville, Livingston Co.

A. J. Snyder, East Springfield, Otsego Co.

Chas. H. Snyder, Downsville.

H. R. VanNortwick, assistant in creamery, Corning, Steuben Co.

Maskell Ware, inspector of creameries, Meridale, Delaware Co.

L. D. Waterman, Willink.

Geo. M. Whyte, assistant in creamery, Moravia, Cayuga Co.

Richard Winslow, Ticonderoga, Essex Co.

In Charge of Cheese Factories

R. E. Barden.

Guy W. Bouman, Alder Creek, Oneida Co.

Erwin G. Davis, Adams Center, Jefferson Co.

E. V. Guardianier, East Springfield, Otsego Co.

Fred Hevener, Glosser.

Benj. F. Killough.

W. H. McMillan, Upper Lisle.

Harvey R. Page, Canajoharie, Montgomery Co.

C. D. Thornton, Tully.

A. E. Thurgood, assistant in cheese factory, Bombay.

Peter S. Utridge, Cadotte, Wisconsin.

In Market Milk Plants

J. W. Campbell, Trenton, N. J.

Pierce D. Egan, New Britain, Conn.

R. F. Ford, Montgomery, Orange Co.

John J. Klein, New Britain, Conn.

Wm. A. Nydam, 239 Broadway, Newburg, Orange Co.

On Home Farm

Henry K. Jarvis, Fly Creek, Otsego Co.

W. L. Markham, Kennedy, Chautauqua Co.

Raymond Tompkins, Ashland, Greene Co.

Otherwise Employed

Joseph H. Bliss is in charge of a private dairy at Derby.

David C. Clegg is chief milk inspector of the city of Philadelphia.

O. Earl Hinckley is a traveling salesman for P. M. Sharples Separator Co., with headquarters at West Chester, Pa.

Amos L. Kenyon is instructor in the Rhode Island Agricultural College.

Geo. Manchester is foreman of an estate at Oneonta, Otsego Co.

M. J. Murray is in the Geneva Experiment Station.

Maurice A. Newton was married March 2nd, to Miss Carrie Mildred Perine at Lysander, N. Y. Mr. Newton has accepted a position as assistant in the department of dairy husbandry at Cornell.

Orr's Wyandottes

Famous the Country Over

Silvers for 24 years, (Now 10 pens)

Whites for 8 years, (Now 9 pens)

Partridge for 5 years, (Now 5 pens)

Also Goldens, Buffs, Blacks, Silver Pencilled and Five Grand Pens of Buff Orpingtons

Prize winners at leading shows, N. Y., Phila., Pan-American, Hagerstown, Pittsburg, Cleveland, Indianapolis and Chicago in our 35 yds.

EGGS \$1.50, \$2, \$3 and \$5 PER SITTING

Booklet Free if you name your variety

T. E. ORR, Box 99, Beaver, Pa.

THE WATSON FOUR-ROW POTATO SPRAYER

**Entirely Automatic, with Agitator and Brushes, which
Stirs the Liquid and Keeps the Suction Strainer Clean**

Wheels and Nozzles Adjustable for rows 2 1-2 to 3 feet apart



Fitted with thills for one horse; tank holds sixty gallons.

Platform is skeleton form as shown, made from hardwood strips five inches wide and four inches apart.

Double cylinder pump, each cylinder $2\frac{1}{2} \times 8$ inches, separate suction pipes and all working parts are made of brass. No leather valves.

The best automatic mechanical agitator fitted with automatic brushes to keep suction strainers clean insuring a steady and continuous supply, in through solution, and without clogging.

Wheels 50 inches in diameter, adjustable on the axle for rows planted $2\frac{1}{2}$ to 3 feet apart; 3-inch tire Axle 1 7-16 inch turned steel; 3 habbitted boxes, one at the center of the axle to prevent springing.

Pressure adjustable, 50 to 100 pounds, at the will of the operator by use of a back pressure safety valve, which will enable the pressure to be gotten up and the mixture thoroughly stirred before commencing to spray.

Four improved single Vermorel nozzles, adjustable to spray potatoes planted in rows two and one half to three feet apart, also a vertical adjustment of pipes and nozzles to allow a privilege of twelve inches up or down: extreme height forty inches from the ground.

Nozzles and pipes as shown are in position for spraying four rows of potatoes when the tops are small; may be removed for passing through gates by loosening two thumb screws.

Will spray orchards, shrubs or any crop where it can be moved about and may be readily converted into a hand sprayer.

Further information promptly upon application.

The WATSON will spray from thirty to forty acres of potatoes, cotton, tobacco or vegetables for a day's work, and without waste of liquid.

This machine can be furnished with pole for two horses and with long evenner and long neck yoke also with 100-gallon tank at additional cost. It can also be furnished with one or two leads of hose for orchard spraying.

We have a WATSON 4-row Potato Sprayer of your manufacture and like it very much.

EASTERLING BROS., Martin, Fla., Jan. 10, '04.

Our WATSON 4-row Potato Sprayer works beautifully and we are much pleased with it.

C. B. WOOLEY, Arcade, N. Y., Aug. 13, '03.

We are so well pleased with the WATSON that we want you to send us another by first freight.

BURT OLNEY CANNING Co., Oneida, N. Y., July 10, '03.

FIELD FORCE PUMP CO., Elmira, N. Y.

If you appreciate THE COUNTRYMAN, mention us to advertisers.

POSITIONS WANTED AND MEN WANTED

By Cornell Agricultural Students

Address:—Care of The Cornell Countryman

WANTED—At once, a reliable energetic wide awake young man to handle milk route. Must be good dry hand milker. Permanent position to right man. State experience and wages. Apply to Thos. W. Telfer, Oakland Dairy, Bay Shore, Long Island.

Wanted—Young married man with no children, educated and capable to plan and execute farm work and have direction of one or two others. Address B. R. S., care of this paper.

Position wanted as herdsman or dairyman. Unmarried man 29 years old. Was herdsman for Ex-Governor Morton one and one-half years, for the Massachusetts Agricultural College one year, and for two years was foreman of a large farm in Pennsylvania. Does not use tobacco, or drink. Took the Cornell Winter Course in Agriculture in 1904. \$40.00 and board desired. Address C. E. Holloway, Meredith, Delaware Co., N. Y.

I have a farm of 12 acres, in the town of Lewiston, Niagara Co., N. Y. Half of the land is devoted to apples, peaches, cherries, and other fruits. The soil is very fertile. The farm is close to the railroad station, and trolley lines, and the steamer line between Lewiston and Toronto. There is a splendid chance for a young man to operate this farm in his own way,—on shares, or any other satisfactory arrangement. It could be used for producing fruit, vegetables and poultry. It is convenient to the markets of Buffalo, Tonawanda and Niagara Falls, with good shipping facilities and good roads. Apply to C. S. Saunders, 1050 Ellicott Square, Buffalo, N. Y.

WANTED—Man over 18 years for general farm work. Address A. T. D., care this paper.

We wish a man to build up and manage our poultry plant. We keep from 700 to 1,000 hens, and raise 2,000 chickens. Married man preferred, but a single man would do. Jarvis Bros., Flycreek, Otsego Co., N. Y.

POSITION WANTED.

Special Student filled position as overseer; life experience in agriculture in general, upon large farms in the West as well as in the East; thoroughly familiar with modern methods of farming especially fruit growing and dairying. J. S. B. care Cornell Countryman.

EVERY FORMER STUDENT

Is wanted in the Scouting lines at the Agricultural frontier. He can best attend to this by saying a good word for the "Countryman" who keeps him in touch with the fellow-workers in the advancement of that frontier.



We hope to make "WANT ADS." a regular feature of the paper. The common tie of CORNELL is a good reference to employers and employees alike. Tell us your needs.

THE CORNELL COUNTRYMAN,

Cornell University,

ITHACA, N. Y.

THE PROGRESSIVE F A R M E R

As well as the business man needs printed stationery. The expense is trifling but the effect is far reaching. It gives you a business standing and enables Uncle Sam to promptly return stray pieces of mail matter.

M I L K M E N

NEED OUR SANITARY MILK TICKETS

Be the first in your town to adopt this very necessary article. It will mean satisfied customers. Send for samples and prices of any of the above

THE IPC PRESS

PUBLISHERS
PRINTERS
ENGRAVERS

Opp. City Hall,

ITHACA, N. Y.

Linotype Composition for the Trade

ROBINSON

Photographer for Class of 1904

Does only High Grade Work

205 NORTH AURORA STREET

G. F. Morgan

THE NEW CORNELL UNIVERSITY PHOTOGRAPHER

Try him and see what he can do. Campus Views, Lantern Slides, and all kinds of reproductive work his specialty.

Phone 169 or address 127 Gascadilla Place, Ithaca, N. Y.



Cypress Greenhouses

Cypress or Yellow Pine

SILOS

Write for Information

THE A. T. STEARNS
LUMBER CO.

BOSTON, MASS.

First Impressions are Lasting Ones

QYou want to make them favorable, Nothing creates a better impression upon your correspondents than good stationery neatly printed *****

Attractive Printing

on good paper is our business. Our prices are right too. Let us prove it to you



STEPHENS PUBLISHING COMPANY
ITHACA, NEW YORK

IRON AGE

For over two generations the Iron Age implements have been helping farmers to do better. Every year in that time we have been making these labor savers better than before. To-day they are successful beyond question; durable beyond comparison; economical beyond doubt.

Improved Reliable Potato Planter.

No. 6. Iron Age Double and Single Wheel Hoe, Mill and Drill Seeder.

No. 60. Iron Age Five Wheel Cultivator.

Write to-day for a free copy of the New Iron Age Book: full of facts that will save you money, time and strength all through the year.

BATEMAN MFG. CO., Box X, Grenloch, N. J.

Does Saving ONE or TWO MEN At the Cutter Mean Anything

in ensilage cutting time? Self Feed on "Ohio" cutters does that and more, and increases capacity 33 1/3%.

1903 "OHIO" Blower Elevators

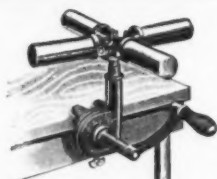
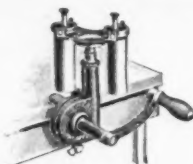
solve the Blower problem. They successfully elevate ensilage into silos up to any height, as demonstrated by abundant proof in 1903 catalogue, 10 and 12 H P. Engines drive Nos. 13, 16, 18 and 19 Cutters with blowers, and all other sizes "Ohio" Ensilage Cutters. In capacity "Ohio" Cutters lead: 10 to 30 tons per hour.

1903 Shredder Blades (patent applied for) are interchangeable with knives, all sizes. They put corn stalks into best condition for feed, running at normal speed.

Our absolute guarantee goes with every machine. Made by

The Silver Mfg. Co., Salem, Ohio.

"Modern Silage Methods" 10 cents, coin or stamps.



Some of Our Specialties

"SIMPLEX" LINK-BLADE CREAM SEPARATOR.

"SIMPLEX" COMBINED CHURN AND BUTTER WORKER.

"FACILE" BABCOCK MILK TESTERS, HAND AND POWER.

"B. & W." MILK HEATERS, DOUBLE SURFACE.

Manufacturers and Handlers
Dairy Creamery Apparatus and Supplies.

D. H. BURRELL & CO.,

LITTLE FALLS, N. Y.

If you appreciate THE COUNTRYMAN, mention us to advertisers.

STEEL ROOFING.



100 SQUARE FEET.....\$2.00
We Pay Freight East of Colorado.
Strictly new, perfect, semi-hardened
steel sheets, 6 and 8 foot long, the best
roofing, siding or ceiling you can use.
Nails free. Painted two sides. Flat, cor-
rugated or V crimped. Write for free
catalog 73 on material from Sheriffs
and Receivers' sales.
CHICAGO HOUSE WRECKING Co.
West 85th & Iron Sts., CHICAGO.

OAKHILL STOCKFARM, CANASTOTA, N. Y.

(Established 30 years).

Jersey Cattle, bred for butter. Cheshire Swine,
bred for prolificacy, lean meat, and quick maturity.
Poultry for beauty and utility, including Rose-comb,
Brown and White Leghorns, and all kinds of Ducks.

R. D. BUTTON & SON.



Ask the most success-
ful poultrymen.

Peep-O'-Day BROODERS

have been on the market
13 years. Used exclu-
sively on the best farms in
America. Catalogue free.

Made only by

Cornell Incubator Mfg. Co., Box 57, Ithaca, N. Y.

EAST HOMER, N. Y., Sept. 21, 1903.
Cornell Incubator Mfg. Co.

Gentlemen: I received your shipment of three
No. 2 Peep-O'-Day brooders in O. K. condition, and
I am pleased to say that I think they are the best
brooders manufactured.

Yours very truly,

FRED HOWE.

EGGS MAY BE EGGS

but drugs are not always
drugs. The kind sold by

T O D D

are really DRUGS, pure, re-
liable, and priced accordingly.

AURORA STREET

Incubator Advancement

Cornell Incubator—heated and ventilated in
Nature's way. Always gets proper moisture
lines at the right time.
Result: Most vigorous
chicks ever hatched
artificially. Gold Medal
—Highest Award—Pan
American Exposition.
Catalogue free. Made
only by

CORNELL INCUBATOR MFG. CO.

Box 57 Ithaca, N. Y.

Cornell Incubator Mfg. Co.

Ithaca, N. Y.; Dear Sirs—

We put the Cornell Incu-

bator to trial twice; 1st time hatched all but four

fertile eggs; 2nd time all but one fertile egg, the

strongest chicks we ever hatched in incubators.

Your very truly,

Worcester, N. Y. Sept. 26, 1903.



J. D. WILCOX & SON.

PRIME COTTON SEED MEAL

Is the best and most profitable
food for cattle and sheep

Reports from the principal Agricul-
tural Experiment Stations show the
great value of Cotton Seed Meal
for feeding. The farmer gets back
the cost of the Meal in the increased
value of manure for fertilizing pur-
poses. It is of special value in feed-
ing milch cows.

It Makes

More Milk Richer Cream Firmer Butter

Cottonseed meal is enriching the
food of dairy cattle all over the world,
more than two hundred thousand tons
being exported annually for this and
kindred uses.

A large quantity goes back to the
fields every year as a fertilizer, its rich-
ness in nitrates giving it special value
as a plant food. As a special aid to
the tobacco raiser it is unequalled for
producing the color, quality and tex-
ture of leaf that is most desired by
buyers and handlers of "the weed."

For sale by all dealers in feed.
Pamphlets mailed free on application
to

THE AMERICAN COTTON OIL CO.,

27 Beaver St.,

NEW YORK, N. Y.

If you appreciate THE COUNTRYMAN, mention us to advertisers.

Boys and Girls

is a beautiful out-of-door magazine for children. Subscription, \$1.00 per year. Spring is coming. Interest the children in out-door work. Address

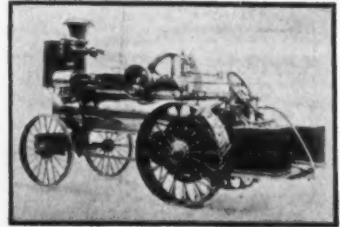
BOYS AND GIRLS

Ithaca, N. Y.

GREENHOUSES.
MATERIAL FURNISHED
AND
MEN TO SUPERINTEND
ERECTION IF DESIRED.
CYPRESS SASH BARS
ANY LENGTH UP TO 32 FEET OR LONGER.
THE A. T. STEAMS LUMBER CO.,
NEPONSET, BOSTON, MASS.

John B. Lang Engine Works

ITHACA, N. Y.



Traction and Portable Engines in Sizes 10 to 25 H. P.

The above cut represents the most complete and efficient traction engine on the market. For power, simplicity, durability and economy of operation, this machine ranks first. We guarantee against defective material and workmanship for one year. SEND FOR CATALOGUE.

THE CHICK IS WILLING

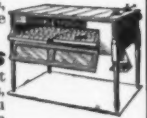


to do its part all right if you give him a fair chance, but he really ought to have that chance. Give us the egg, a fairly good egg, and then watch the

Reliable Incubators & Brooders

get in their work. This matter of selecting the right machine means success or failure, chicks or no chicks, dollars in pocket or out. Sizes to suit all. Have you a copy of the **20th Century Poultry Book** in the house? We have gotten out good catalogues in the past, but this one stands alone. A treatise of the whole poultry question by eminent poultry men. **The Reliable Poultry Farm**, with 126 pens of thoroughbred poultry, furnishes material for an interesting chapter. Sent anywhere upon receipt of 10 cents.

RELIABLE INCUBATOR & BROODER CO., BOX E2 QUINCY, ILLINOIS.



WHITE LEGHORNS

Bred for size, vigor, prolificacy and extra large snow white eggs

Nine Years Developing Our Strain

Catalogue Free

WHITE & RICE,

ROUTE 7,
YORKTOWN, N. Y.

If you appreciate THE COUNTRYMAN, mention us to advertisers.

GULF CYPRESS GREENHOUSE MATERIAL

Cut and Spliced Ready for Erection

Hot-Bed Sash, Boilers, Pipe Fittings, Ventilating Apparatus

GLASS AT WHOLESALE

Try our Seal-Tight Liquid Putty, Sample Gallon 75c.

S. JACOBS & SONS,

Manufacturers, 1365-1373 Flushing Ave., Brooklyn, N. Y.

We furnish everything for building

Send for catalogue

THE AMERICAN FANCIER

Issued Every Week at Johnstown, N. Y.

If you are Interested in Thoroughbred Poultry and wish to keep posted on all matters pertaining to the fancy, ours is the paper for you. It is edited by J. H. DREVENSTEDT, the well known judge of Poultry.

**Address: THE AMERICAN FANCIER,
JOHNSTOWN, NEW YORK**

THE NEWEST AND BEST AGRICULTURAL BOOKS

**Are Included in the
Rural Science and Garden Craft Series**

Edited by Professor Bailey

SEND FOR SPECIAL LIST

Cornell Co-operative Society

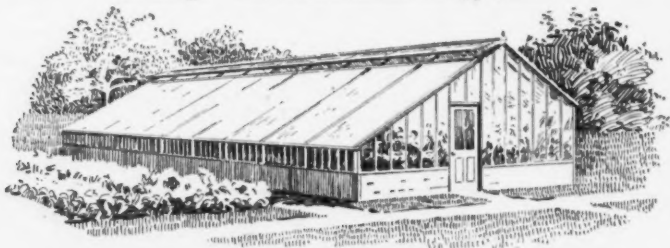
**28 Morrill Hall, ^{CORNELL}
CAMPUS Ithaca, N. Y.**

If you appreciate THE COUNTRYMAN, mention us to advertisers.

GREENHOUSES AND CONSERVATORIES

erected complete with our Patent Iron Construction.

Special attention given to designing and locating ranges of glass to harmonize with surroundings. Plans and estimates on application.



Material of all Kinds Ready for Erection.
Air Dried Red Gulf Cypress. Strictly Free from Sap.
"Special" Greenhouse Putty, Glass, Etc.

Prices upon application

LORD & BURNHAM COMPANY,

New York Office, St. James Bldg., Broadway & 26th St.

General Office and Works, Irvington-on-Hudson.

Greenhouse Construction Catalogue, and Greenhouse Heating and Ventilating Catalogue mailed from New York Office on receipt of 5 cents postage for each.

AMERICA'S LEADING HORSE IMPORTERS A RECORD OF SUPERIORITY NEVER APPROACHED.

At the International Live Stock Exposition, 1903, one of our 2200 pound stallions won First prize and Championship. One of our sensational acting Coach stallions won First prize and Championship. Four Percherons won First in collection. Our stallions entered into competition ten times and five times won First prize, none of our competitors in all these contests won more than one First prize.



At the Great Annual Show of France, held at Evreux, June, 1903, our stallions won First, Second, Third and Fourth prizes in every Percheron stallion class; also won First as best collection.

At the show of the Societe Hippique Percheronne de France held at Nogent-le-Rotrou, June 1903, our stallions won every First prize, over Forty prizes in all. Two groups were made up of our exhibit on which we won First and Second.

At the American Royal, 1903, our Percheron stallions won every First prize. One of our Percherons won Championship. Five of our Percherons won First as best collection. Our French Coach stallions were equally successfully, winning every First prize.

At the Iowa State Fair our Percheron stallions won Three First prizes and First in Collections.

At the Minnesota State Fair our French Coach stallions won every possible First prize and Grand Sweepstakes.

At the Ohio State Fair our stallions won Fourteen First prizes out of a possible fifteen. At the Indiana State Fair our Percherons won Three First prizes. Our French Coachers won every possible prize.

At the Kansas State Fair our Percheron and French Coach stallions won every First prize including Grand Sweepstakes.

Our last importation and the fourth for us in 1903, arrived in Columbus, Tuesday, Dec. 8th. During the year we have imported from France four times as many Percheron and French Coach stallions as have been brought over by any body else.

Ours are the very best, we import more of them, sell more of them and therefore can furnish our customers a better horse for the money than can be bought elsewhere.

If your neighborhood is in need of a good stallion, let us hear from you.

McLAUGHLIN BROS.,

St. Paul, Minn.

Columbus, Ohio

Kansas City, Mo.

If you appreciate THE COUNTRYMAN, mention us to advertisers.



3.

1.
-
n
st
d
ll

e,
n
i.
e
y
p

n
o.
h
st

ee

st

t.
h

st

c.
d

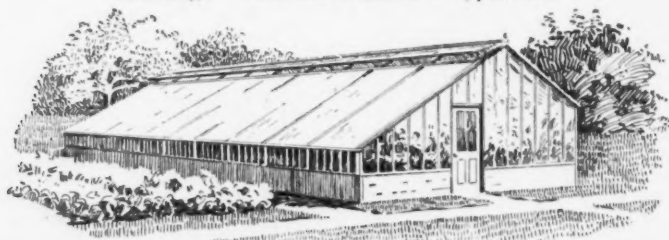
n

.

GREENHOUSES AND CONSERVATORIES

erected complete with our Patent Iron Construction.

Special attention given to designing and locating ranges of glass to harmonize with surroundings. Plans and estimates on application.



**Material of all Kinds Ready for Erection.
Air Dried Red Gulf Cypress. Strictly Free from Sap.
"Special" Greenhouse Putty, Glass, Etc.**

Prices upon application

LORD & BURNHAM COMPANY,

New York Office, St. James Bldg., Broadway & 26th St.

General Office and Works, Irvington-on-Hudson.

Greenhouse Construction Catalogue, and Greenhouse Heating and Ventilating Catalogue mailed from New York Office on receipt of 5 cents postage for each.

AMERICA'S LEADING HORSE IMPORTERS

A RECORD OF SUPERIORITY NEVER APPROACHED.

At the International Live Stock Exposition, 1903, one of our 2200 pound stallions won First prize and Championship. One of our sensational acting Coach stallions won First prize and Championship. Four Percherons won First in collection. Our stallions entered into competition ten times and five times won First prize, none of our competitors in all these contests won more than one First prize.



At the Great Annual Show of France, held at Evreux, June, 1903, our stallions won First, Second, Third and Fourth prizes in every Percheron stallion class; also won First as best collection.

At the show of the Societe Hippique Percheronne de France held at Nogent-le-Rotrou, June 1903, our stallions won every First prize, over Forty prizes in all. Two groups were made up of our exhibit on which we won First and Second.

At the American Royal, 1903, our Percheron stallions won every First prize. One of our Percherons won Championship. Five of our Percherons won First as best collection. Our French Coach stallions were equally successfully, winning every First prize.

At the Iowa State Fair our Percheron stallions won Three First prizes and First in Collections.

At the Minnesota State Fair our French Coach stallions won every possible First prize and Grand Sweepstakes.

At the Ohio State Fair our stallions won Fourteen First prizes out of a possible fifteen. At the Indiana State Fair our Percherons won Three First prizes. Our French Coachers won every possible prize.

At the Kansas State Fair our Percheron and French Coach stallions won every First prize including Grand Sweepstakes.

Our last importation and the fourth for us in 1903, arrived in Columbus, Tuesday, Dec. 8th. During the year we have imported from France four times as many Percheron and French Coach stallions as have been brought over by any body else.

Ours are the very best, we import more of them, sell more of them and therefore can furnish our customers a better horse for the money than can be bought elsewhere.

If your neighborhood is in need of a good stallion, let us hear from you.

McLAUGHLIN BROS.,

St. Paul, Minn.

Columbus, Ohio

Kansas City, Mo.

If you appreciate THE COUNTRYMAN, mention us to advertisers.



GORNELL UNIVERSITY

College of Agriculture

The College of Agriculture is one of several co-ordinate colleges comprising Cornell University. The work of the College of Agriculture is of three general kinds: The regular teaching work; the experiment work; the extension work. The courses of instruction fall in the following groups:

1. Four-year course, leading to the degree of Bachelor of the Science of Agriculture. As a variation, the last two years may be chosen in subjects pertaining to landscape architecture and outdoor art. In the Graduate Department of the University, students receiving the above degree may secure the Master's and Doctor's degrees (M. S. A., and Ph. D.)

2. Special two year courses: (a) Agricultural Special. (b) Nature-Study Special.

3. Winter-Course of 11 weeks: (a) General Winter Course. (b) Dairy Course.

Staff of the College of Agriculture, 1903.

L. H. BAILEY, Director.

I. P. ROBERTS, Professor of Agriculture, Emeritus.

Agronomy:

T. F. HUNT,
S. FRASER,
J. L. STONE,
J. W. GILMORE,
O. W. TALLEY.

Animal Husbandry:

H. H. WING,
J. M. TRUMAN,
J. B. RICK (Poultry Husbandry).

Dairy Industry:

R. A. FRANKSON,
J. M. TRUMAN,
H. C. TROY,
W. W. HALL,
W. E. GRIFFITH.

Horticulture:

JOHN CRAIG,
R. S. NORTROP,
S. W. FLETCHER,
C. H. HUNN.

Soils:

J. A. BONSTEEL.

Agricultural Chemistry:

G. C. CALDWELL,
G. W. CAVANAUGH,
S. A. BEEHLL.

Entomology:

J. H. COMSTOCK,
M. V. SLINGERLAND,
A. D. MCGILLIVRAY,
W. A. RILEY.

Plant Pathology:

JAMES M. VAN HOOK,
E. H. WHITEELL.

Rural Economy:

L. H. BAILEY,
G. N. LAUMAN.

Nature Study:

J. W. SPRINGER,
MRS. COMSTOCK,
ALICE G. MCCLOSKEY.

Extension Teaching:

S. W. FLETCHER.

Reading-Courses:

S. W. FLETCHER,
MARtha VAN KENNEDY.

U. S. Separator—1904 Model

A Triumph of Perfection—Right Up to Date

Not only the
CLEANEST SKIMMING SEPARATOR
THE WORLD HAS EVER SEEN,
But the
HANDIEST AND EASIEST OPERATED.



The 1904 Model U. S.
has the only practical
Low Supply Cost.

Has clutch bushing;
no lost motion; and the
gearing stops when crank
is released.

Safest machine on the
market; gearing entirely
enclosed.

Built for service and
efficiency.

Investigate its merits
and
**You will Say None
but the U. S.**

Catalogues free for the asking.

We have the following branch offices: Portland, Me., Gloucester and Haverhill, Mass., Hamilton, Ont.,
La Crosse, Wis., Minneapolis, Minn., Chicago, Ill., Sioux City, Ia., Omaha, Neb.,
Kansas City, Mo. Address all letters to

Vermont Farm Machine Co., Bellows Falls, Vt.

